

**RULE BASED ADAPTIVE EMOTIONAL SOLVING WEB TUTORING
(AESWT) FOR KINDERGARDEN SCHOOL ON LEARNING
MATHEMATICS**

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ABSTRACT

Rule Based Adaptive Emotional Solving Web Tutoring (AESWT) was develop to help the kindergarten student to solve they emotion problem when using web tutoring on mathematics. This AESWT focus on kids because nowadays we can see that the kids are more exposure and also as the higher percentage as user which use modern technology such as computer and smartphone. In addition, most of the tutoring for kids are using online. Therefore, systems that can resolve emotion problems among kindergarten student need to be developed in order to reduce that problem. The objective of the Adaptive Emotional Solving Web Tutoring (AESWT) system to be created is apply adaptive presentation technique for web tutoring. Seconds, developing prototype for adaptive emotional solving. Lastly, test the functionality of the prototype. This Adaptive Emotional Solving Web Tutoring (AESWT) will adapt in web tutoring mathematic. This AESWT function when received information about the emotional status of kindergarten student and it have the ability to change the Graphical User Interface based on emotion. In order to do that, this AESWT will use the rule based technique to match of human emotions with the right solutions. Besides that, this project using Macromedia Dreamweaver CS8 to develop Adaptive Emotional Solving Web Tutoring (AESWT). This AESWT, have three target emotion to solve which sad, happy, and angry. In addition, Adaptive Emotional Solving Web Tutoring (AESWT) will automatically help kids to solve they emotion easily during using a web tutoring on mathematics. The results for this prototype show that it can be a functionality when it can be change the interface to become more interesting and can be accepted by kindergarten kids. As the conclusion, AESWT system is can make kids feel comfortable and easily to solve emotional problem.

ABSTRAK

Tutoran web Adaptif berasaskan penyelesaian emosi (TAPE) telah dibangunkan untuk membantu pelajar tadika menyelesaikan masalah emosi mereka apabila menggunakan laman web matematik. TAPE memberi tumpuan pada kanak-kanak kerana pada masa ini kita dapat lihat bahawa kanak-kanak telah banyak didedahkan dan juga menunjukkan peratusan yang tinggi sebagai pengguna yang menggunakan teknologi moden seperti komputer dan telefon pintar. Di samping itu, kebanyakan pendidikan untuk kanak-kanak juga menggunakan internet. Oleh itu, sistem yang boleh menyelesaikan masalah-masalah emosi di kalangan kanak-kanak perlu dibangunkan dalam usaha untuk mengurangkan masalah itu. Objektif TAPE yang akan diwujudkan adalah memohon teknik persembahan penyesuaian untuk tunjuk ajar web. Kedua, membangunkan prototaip untuk menyelesaikan emosi penyesuaian. Akhir sekali, menguji fungsi prototaip. TAPE akan menyesuaikan diri dalam web tutor matematik. TAPE berfungsi apabila menerima maklumat tentang status emosi pelajar tadika dan ia mempunyai keupayaan untuk menukar laman web berdasarkan emosi yang ditunjukkan. Dalam usaha demikian, TAPE ini akan menggunakan teknik berasaskan peraturan untuk dipadankan dengan emosi manusia dengan memberikan penyelesaian yang bersesuaian. Selain itu, projek ini menggunakan Macromedia Dreamweaver CS8 untuk membangunkan TAPE. TAPE ini, mempunyai tiga sasaran emosi untuk diselesaikan iaitu sedih, gembira dan marah. Disamping itu, TAPE akan berfungsi secara automatik akan membantu kanak-kanak menyelesaikan emosi mereka dengan mudah semasa menggunakan tutor web pada matematik. Tambahan pula, keputusan menunjukkan 70% peratus pelajar menyukai sistem ini. Sebagai kesimpulan, sistem TAPE boleh membuat kanak-kanak berasa selesa dan mudah untuk menyelesaikan masalah emosi.

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LIST OF ABBREVIATIONS

AESWT: Adaptive Emotional Solving Web Tutoring

RAD: Rapid Application Development

SDLC: Software Development Life Cycle

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Human emotion is one of the important topics in psychological area and most important features in human development. When the human condition is unstable or in a prolonged state of uncontrolled emotion it might result in adverse effects towards the human. Thus, human emotions are one of the best ways to express the feelings of humans. In addition, human emotion can be divided into two categories which is positive and negative emotion. Then, positive and negative emotions are influenced by the environment and the activities carried out by humans.

Positive emotions showed that people in good condition but negative emotions show otherwise. So, negative emotion is something that should be treating because it can cause harm to human life. As we can see nowadays, they are lots of research done to control or solve the problem of human emotion. Based on this observation, Adaptive Emotional Solving Web Tutoring (AESWT) for kindergarten school web tutoring on mathematic was develop to help kids in order to solve they emotion problem. It is an adaptive web tutoring that available for kindergarten kids. This adaptive system is providing to solve the emotion of kids when using internet by giving a good solution. However, EST only gives a solution for sad, angry and happy expression. For example,

when user is in sad condition, it would provide music as a therapy. Besides that, according to Moore “listening to music can make you feel better when you're sad, help you dance around the house when you're happy, and make you cry when you really need a good cry (2011).

1.2 PROBLEM STATEMENT

Nowadays, most of the web-based are not provide Adaptive Emotional Solving for internet user. Therefore, nobody knows when user experiencing emotional distress. In addition, users are not very comfortable with the website they visit which has many instructions to be followed and websites look very messy then it will make the internet users feel bored and depressed.

Besides that, is very hard to find the best way to solve the expression from the user. This is because different person have different way to solve the problem. Sometime, the solution that recommended to the internet users is not satisfactory and unable to solve the problem of user emotion. In fact, makes users feel resentful and they will be more emotionally disturbed than before. For example when users are in angry expression then the system has given them a sad song, and then it makes the user feel sad. Lastly, that most of the Adaptive Emotional Solving have limitation because it's does not provide many solutions for emotional problems and only a few emotions are choose to be solved.

1.3 OBJECTIVES

There are three objective of this research are:

- i. To apply adaptive presentation technique for web tutoring.
- ii. To develop prototype for adaptive emotional solving.
- iii. To test the functionality of the prototype.

1.4 SCOPE

There are fourth scopes on this research. First, the emotion expression will be collected and solve from 10 kindergarten students from different gender. Second, principle of human computer interaction for children is applying in this AESWT project to identify what kind of interface suitable to solve the expression emotion of children and make them friendly with that tools. In addition, use a rule based technique also apply in this system to match the emotion of kids with suitable solution for them. Third, the target emotional categories that will be solved using this AESWT are happy, sad and angry/stress. Fourth, software which used for develop AESWT are Macromedia CS8. This Macromedia CS8 is using for designing the interface according to solve the emotion problem. In addition, the hardware used for this project is laptop.

1.5 THESIS ORGANIZATION

This research consist of five chapter. Chapter 1 discusses about introduction to system. This chapter is described about overall of Rule Based Adaptive Emotional Solving Web Tutoring (AESWT) that will be done. Its include introduction of the AESWT, problem statement, objectives, scope, and thesis organization. Chapter 2 discusses about the literature review which related in this project. This chapter also mention about technique that compatible to this project. Chapter 3 is methodology that supposed to discuss on the approach to build the system. The information that mention in this chapter is introduction of methodology and software used.

Chapter 4 involves design and implementation that discuss about develop the framework and model through flow work. Then include researched which have planning of data analysis. Chapter 5 involves result and discussion that elaborate about the result from data analysis that have been done. The element should be included in this chapter are result analysis, the problem arise, and solution taken. Chapter 6 involves the conclusion that conclude or summaries overall about this project starting from chapter 1 until the last chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Nowadays, in the modern world and modern sophisticated there are many studies done to create software that will help human to solve their problems in the superlative method. One of the software is Adaptive Emotional Solving Web Tutoring (AESWT) which is can benefit the internet user by give the solution for their emotion whether bad or good emotion. Based on science daily articles, emotion in its most general definition is a neural impulse that moves an organism to action, prompting automatic reactive behavior that has been adapted through evolution as a survival mechanism to meet a survival need. Besides that, according to Linda Davidoff she has defines emotion as a feeling that is expressed through physiological functions such as facial expressions, faster heartbeat, and behaviors such as aggression, crying, or covering the face with hands.

As we all know, the emotion play an extremely important role in human life. This is because without human illustration feeling by face expression, the others not know what actually they want to delivered. This can affect the human activities such as misunderstanding and hurt feeling. Thus, emotion is important because it can help act as information, essential for making good decisions, communicate, and enjoyment. Emotion as information which is given human knows about anger, fear, sadness, happiness, jealousy, and grief. Then, its act as good decision making by combining emotion with head and heart together are necessary for making better choices.

Besides that, emotion can help human communication with surrounding because all human beings are share the same emotional language such as an angry face is described angry by someone in London and in Siberia. Lastly, emotion plays an enjoyment feeling because feeling help us recognized truth, appreciate beauty and give us the experience of joy. (Jaktraks, 2012)

Here there is some briefly explanation how does the Adaptive Emotional Solving Web Tutoring (AESWT) works. Firstly, this project are involves only the user which interact with web based. The face expressions of the user are recognizing by other system. After that, the result of emotion of user from that system will appear at the screen. Then, the AESWT will provide a solution link at the below image based on that user expression. Then, user can click the link to know what the best solution for their emotion. This AESWT only can solve three emotion of user which is sadness, happiness and angry. Each emotion that shows from user would have indicated more than one solution because each person has a different way to appease their feelings.

As a conclusion, the AESWT is the systems that can help the kids feel comfortable to interact with web based. Besides that, this system can change the emotional of the user by the solution given it will make the kids feel better than before.

2.2 Information of Adaptive Emotional Solving Web Tutoring (AESWT)

Emotional design has become a powerful tool in creating exceptional user experiences for websites. Besides that, provide the emotion solving tool, will assist humans in solving emotional problems that they face when interacting with computers. In addition, Adaptive Emotional Solving Web Tutoring (AESWT) can be used as a means of prevent bad things happening when kids uncontrolled their emotions. For

example, people will take the easy way out by committing suicide when they do not know the best way to solve the problem. Thus, this system can help the kids or guide them to solve their emotion.

Refer to this website <http://www.healthguidance.org/entry/5440/1/What-Are-The-Benefits-of-Controlling-Your-Emotions.html> October 17, 2012 8.00pm (Online), the author is Abbas Abedi talk about the definition of emotion and effect of emotion. The admin state that emotions are the language of everyone's mental and emotional state of being. They are normally tied to person's social and physical sensory feelings. Emotions are the type of feelings used to react to fear, joy, love, sadness, hate, disgust, and pleasure. However, there are times when people need to control or suppress their emotions to prevent violence or other negative behaviors.

While, refer to this website <http://www.collect-emotional-feedback-on-your-live-website> (Online), this author said, state about emotions become increasingly important on the web nowadays. While good usability has become a common standard, the user experience of a website has turned into a major distinguishing factor. People no longer want to solve boring tasks on your site, they want to be entertained and experience pleasure while finding answers to their questions (Sabina, 2012).

2.3 RELATED WORKS

There are many systems that develop using web base application which have using different types of technology and methodology. Usually, all the systems that have been developed have their own strength and weaknesses.

2.3.1 HELPGUIDE



FIGURE 2.1: TALK WE LISTEN website

Helpguide is a web base application that allows anyone to go through this website especially for those which have emotion problem. This website provide the guideline which help the person to control and manage they emotion problem such as stress, depression, anger and so on.

As with others website, Helpguide website also have advantage and disadvantage. The advantage of Helpguide website is there have lot of text information about manage and control people emotion. This website also have a good design of graphical user interface (GUI). This is because this website have properly structure which can avoid from user misunderstanding. Besides that, Helpguide website also uses of blue color for the each interfaces that can cause users feel comfortable and calmness.

Then, the disadvantage of this website is too much word in one section that makes the page a little bit crowded. Because of that problem, this website interface is not really interactive and make user bored.

2.3.2 TALK WE LISTEN

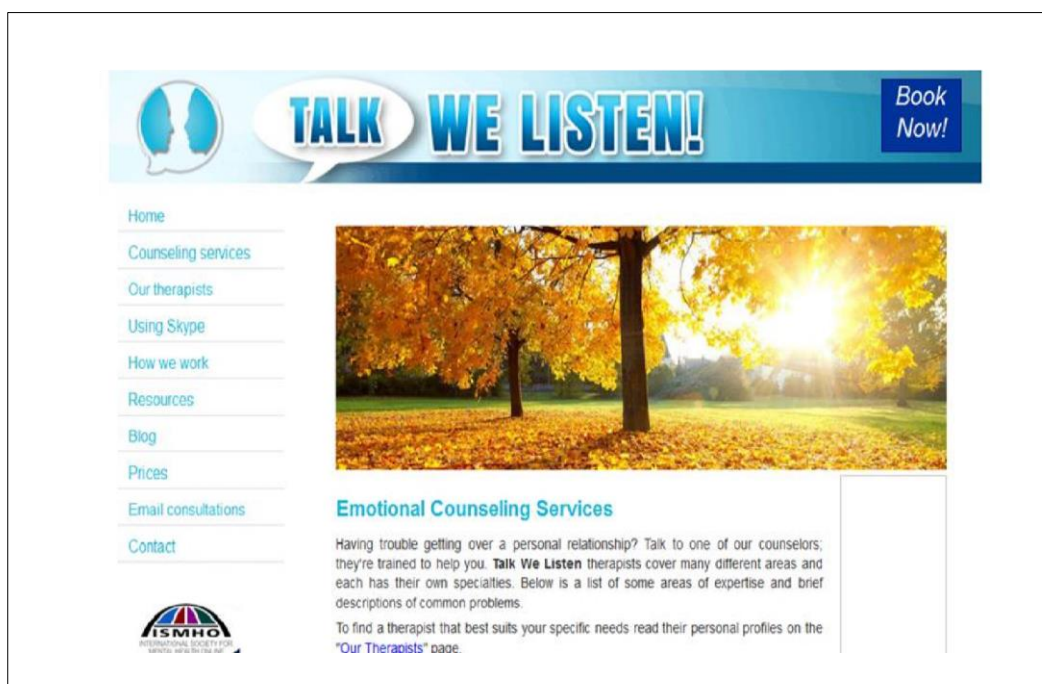


FIGURE 2.2: TALK WE LISTEN website

The TALK WE LISTEN website is an online service that using web base application. This system has been developed in order to ease the people to get a therapy due to their emotion problem using online which is fast and not taking too much time. There are many type of counseling service provided in this website such as anger, depression, disclaimer, phobia and so on.

There are several advantages of this website which provided online application that ease people to get counseling services from therapist without wasting too much time and money. Besides that, provide you with the opportunity to receive counseling from professional psychologists.

This website also have some disadvantage .Firstly, there is too much information that put together in one page and make hard for people to use the website. In addition, interface of this system also not well organized in term of colors, font size and many more.

2.3.3 EMOTIONAL PROBLEM SOLVING



FIGURE 2.3: EMOTIONAL PROBLEM SOLVING website

Emotional problem solving is web base application technology that solve emotional problem. This website provides information about emotional category and way to solve it. Emotional problem solving website has given a tips to avoid people from get an emotion problem in daily life.

There are several advantage of this website. This website is simple and anyone can access in this website without register their information. Besides that, emotional problem solving website also can attract people to access it because they are not have too much word which can avoid people from feel bored and confusing.

However there are several weaknesses that had been found in this system. First, this system icon are not well organized such tab, menu bar and so on. Seconds, the home page of this website have not look like a properly structure and a lot of empty space.

2.3.4 COMPARISON AND DISCUSSION

There is briefly discussion about three website that have been choosing. This three existing system which are HELPGUIDE, TALK WE LISTEN and Emotional Problem Solving. This existing system would become guideline and references in order to develop Adaptive Emotional Solving Web Tutoring (AESWT) each of system that has been chooses there are some weaknesses in term of user interface and function.

Then, in order to develop Adaptive Emotional Solving Web Tutoring (AESWT) successfully and meet requirement the feature of the system must have good characteristic in term of performance and fulfilled the user needs. Thus, Adaptive Emotional Solving Web Tutoring (AESWT) will be developed with the superlative and can overcome the weakness or enhance the existing system. After that, AESWT will provides good system interfaces and design properly to make sure it will look more interactive in term of criteria need for graphical user interfaces (GUI).

In addition, AESWT also provide picture which related to emotion problem which can attract people to use this system. Besides that, AESWT also put a sound or music to make the people enjoy and relaxes. Besides that, AESWT avoids to use a lot of word for every page this is because to make sure the user not feel messy and crowded. This can make user ease to handle the system without any instruction given. Lastly, AESWT will use rules based technique for develop system as a function to identify which solution are suitable due to emotional respond from user.

In conclusion, in order to develop an efficient and systematic system all aspect must satisfy. The AESWT system also need to fulfilled user requirement and help them to use this system properly.

2.4 METHODOLOGY

Methodology is act as a guideline to help the developer to develop a system or use in an organization. Emotion Solving Tools are no exception to use a methodology as a guideline. There are several kinds of methodologies such as SDLC waterfall, Rapid Application Development (RAD) and lastly maybe by using agile methodology.

2.4.1 SDLC Waterfall Model

The waterfall model is a popular version of the systems development life cycle model for software engineering. Often considered the classic approach to the systems development life cycle, the waterfall model describes a development method that is linear and sequential. Waterfall development has distinct goals for each phase of development. Imagine a waterfall on the cliff of a steep mountain. Once the water has flowed over the edge of the cliff and has begun its journey down the side of the mountain, it cannot turn back. It is the same with waterfall development. Once a phase of development is completed, the development proceeds to the next phase and there is no turning back.